ZOOLOGY/BIOLOGY 101 — ANIMAL BIOLOGY
3 credits.

General biological principles. Topics include: evolution, ecology, animal behavior, cell structure and function, genetics and molecular genetics and the physiology of a variety of organ systems emphasizing function in humans. Enroll Info: None
Requisites: Not open to students with credit for BOTANY/BIOLOGY/ZOOLOGY 151 or 152
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY/BIOLOGY 102 — ANIMAL BIOLOGY LABORATORY
2 credits.

General concepts of animal biology at an introductory level emphasizing the evolutionary relationships between animals. Learn about general body plans and strategies used to accomplish the basic tasks of staying alive in major animal groups using preserved and live animals. Study the diversity within each group of animals by integrating the body plans with the lifestyle and ecology of animals. Dissections of earthworm, freshwater mussel, squid, sea star, and rat aid the study of these general principles. Enroll Info: None
Requisites: Not open to students with credit for BOTANY/BIOLOGY/ZOOLOGY 151 or 152
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY/BIOLOGY/BOTANY 151 — INTRODUCTORY BIOLOGY
5 credits.

Topics include: cell structure and function, cellular metabolism (enzymes, respiration, photosynthesis), information flow (DNA, RNA, protein), principles of genetics and selected topics in Animal Physiology. Enroll Info: None
Requisites: Not open to students with credit for BIOLOGY/ZOOLOGY 101, 102 or BIOLOGY/BOTANY 130
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY/BIOLOGY/BOTANY 152 — INTRODUCTORY BIOLOGY
5 credits.

Topics include: selected topics in plant physiology, a survey of the five major kingdoms of organisms, speciation and evolutionary theory, and ecology at multiple levels of the biological hierarchy. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY/BOTANY 151
Course Designation: Gen Ed - Communication Part B
Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY 153 — INTRODUCTORY BIOLOGY
3 credits.

Topics include: cell structure and function, cellular metabolism (enzymes, respiration, photosynthesis), information flow (DNA, RNA, protein), principles of genetics, and selected topics in Animal Physiology. Designed for engineering majors that do not need a lab component. Enroll Info: None
Requisites: Not open to students with credit for BIOLOGY/ZOOLOGY 101, 102 or BIOLOGY/BOTANY 130
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY/PL PATH 154 — TINY EARTH: ANTIBIOTIC DISCOVERY RESEARCH
2 credits.

Learn basic methodology in scientific research and discovery, including laboratory techniques, quantitative reasoning, scientific communication, and collaboration. Gain hands-on laboratory experience working with microbes to test original hypotheses concerning the discovery of potential antibiotic compounds while addressing the world’s antibiotic resistance crisis by contributing data to the global “Tiny Earth” network of researchers to advance potential drug development. Tiny Earth seeks to encourage students to pursue careers in science through real-world, applied research experiences and aims to address a worldwide health threat of the diminishing supply of effective antibiotics by "student-sourcing antibiotic discovery.” Enroll Info: Concurrent enrollment in BIOLOGY/BOTANY/ZOOLOGY 152 is required for permission to enroll.
Requisites: Consent of instructor
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022
ZOOLOGY 199 — DIRECTED STUDY
1-3 credits.
Directed study/independent research. Experience hypothesis development, research through faculty mentorship. Enroll Info: None
Requisites: Consent of instructor
Course Designation: Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2021

ZOOLOGY/BOTANY/ENVIR ST 260 — INTRODUCTORY ECOLOGY
3 credits.
The relationships of organisms and the environment. Population dynamics and community organization, human-environment relationships, action programs. Enroll Info: None
Requisites: None
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Elementary
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY 299 — DIRECTED STUDIES IN ZOOLOGY
1-3 credits.
Directed study/independent research. Experience hypothesis development, research through faculty mentorship. Enroll Info: None
Requisites: Consent of instructor
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2021

ZOOLOGY 301 — INVERTEBRATE BIOLOGY AND EVOLUTION LAB
2 credits.
Introduction to invertebrate diversity and biology, with emphasis on anatomy, development, and systematic relationships of the main animal phyla. Phyla are discussed in the context of major themes in animal evolution, such as the origin of tissue layers, the diversity of feeding mechanisms, the evolution of terrestrialization, patterns of diversification through time, and the conservation of transcriptional circuitry. Focus on animal diversity from a phylogenetic and developmental perspective. Enroll Info: None
Requisites: Concurrent enrollment in ZOOLOGY 300
Course Designation: Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY/ENTOM 302 — INTRODUCTION TO ENTOMOLOGY
4 credits.
Principles including morphology and classification. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY 101, ZOOLOGY/BIOLOGY/BOTANY 151, ZOOLOGY 153, or BIOCORE 381
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY 303 — AQUATIC INVERTEBRATE BIOLOGY
3 credits.
The form, function, development, basic physiology and ecology of the freshwater and marine invertebrates in the context of their environment. Study live invertebrate specimens, their habitat selection, adaptation and diversity. Enroll Info: None
Requisites: (ZOOLOGY/BIOLOGY 101 and 102), ZOOLOGY/BIOLOGY/BOTANY 151 and 152, or BIOCORE 381
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Summer 2016

ZOOLOGY 304 — MARINE BIOLOGY
2 credits.
Explore the biological and ecological systems of the oceans and marginal seas. Focus on understanding how marine organisms interact with their physical environment and how the biological components of the oceans are interconnected through trophic interactions and habitat selection. Enroll Info: None
Requisites: (ZOOLOGY/BIOLOGY 101 and 102), ZOOLOGY/BIOLOGY/BOTANY 151 and 152, or BIOCORE 381
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Summer 2021
### ZOLOGY/ENVIR ST 315 — LIMNOLOGY-CONSERVATION OF AQUATIC RESOURCES
2 credits.

General limnology. Physical, chemical and biological characteristics and processes of lakes. Environmental problems and rehabilitation of lakes. Enroll Info: None

**Requisites:** ZOLOGY/ENVIR ST 315 or concurrent enrollment

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level - Intermediate**

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

**Last Taught:** Fall 2021

### ZOLOGY 316 — LABORATORY FOR LIMNOLOGY-CONSERVATION OF AQUATIC RESOURCES
2-3 credits.

Biological, physical, and chemical characteristics and their interrelationships in Wisconsin lakes and streams. Enroll Info: None

**Requisites:** ZOLOGY 254

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level - Intermediate**

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

**Last Taught:** Fall 2021

### ZOOLOGY/F&W ECOL 335 — HUMAN/ANIMAL RELATIONSHIPS: BIOLOGICAL AND PHILOSOPHICAL ISSUES
3 credits.

An interdisciplinary approach to our complex and often contradictory relationships with non-human animals, including information about the nature, needs and behavior of human and non-human animals in relation to our personal and professional interactions with them. Enroll Info: None

**Requisites:** Sophomore standing

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level - Intermediate**

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Repeatable for Credit: No

**Last Taught:** Spring 2019

### ZOOLOGY/ENTOM/M & I/PATH-BIO 350 — PARASITOLOGY
3 credits.

The biology of water-borne, food-borne, soil-borne and vector-borne parasites of animals including humans. Parasites are explored in the context of transmission, associated disease, diagnosis and treatment options, and environmental, cultural and socioeconomic drivers of disease epidemiology. Enroll Info: None

**Requisites:** ZOLOGY 254, ZOLOGY 255, or ZOLOGY 256

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level - Intermediate**

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

**Last Taught:** Spring 2022

### ZOOLOGY/ENVIR ST/F&W ECOL 360 — EXTINCTION OF SPECIES
3 credits.

A comprehensive treatment of the ecology, causes, and consequences of species extinction. Ecology and problems of individual species, habitat alteration and degradation, socio-economic pressures and conservation techniques and strategies. Enroll Info: None

**Requisites:** Sophomore standing and ZOLOGY 254

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level - Intermediate**

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Sustain - Sustainability

Repeatable for Credit: No

**Last Taught:** Spring 2019

### ZOOLOGY 400 — TOPICS IN BIOLOGY
1-3 credits.

Various intermediate level topics in Biology. Each section will explore a different topic in biology. Enroll Info: None

**Requisites:** Sophomore standing

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level - Intermediate**

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Grad 50% - Counts toward 50% graduate coursework requirement

Sustain - Sustainability

Repeatable for Credit: Yes, unlimited number of completions

**Last Taught:** Spring 2022

### ZOOLOGY 405 — INTRODUCTION TO MUSEUM STUDIES IN THE NATURAL SCIENCES
2-3 credits.

Provides an overview of natural history museums, including history, field collecting, specimen preparation, collection preservation, ethics, education and employment opportunities. Introduces the natural science museums and library collections located on the UW campus. Enroll Info: None

**Requisites:** Junior standing

**Course Designation:** Level - Intermediate

L&S Credit - Counts as Liberal Arts and Science credit in L&S

Repeatable for Credit: No

**Last Taught:** Fall 2021
ZOOLOGY/ANTHRO/BOTANY 410 — EVOLUTIONARY BIOLOGY
3 credits.

Evolutionary biology, emphasizing how modern scientists study evolution. Topics include: nature and mechanisms of microevolution, macroevolution, adaptation, speciation; systematics and taxonomy; quantitative genetics and measurement of natural selection; phylogenetic analyses of behavior, physiology, morphology, biochemistry; current controversies in evolution. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY 101, BIOLOGY/BOTANY 130, ZOOLOGY/BIOLOGY/BOTANY 152, BIOCORE 381, (ANTHRO 105 and satisfied QR-A requirement), or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY 425 — BEHAVIORAL ECOLOGY
3 credits.

Explore how organisms make decisions and how these decisions affect their survival. These decisions are key aspects of an organism’s life, e.g. foraging behavior, mating behavior, anti-predator behavior, and habitat selection. Approaches these questions with the perspective that understanding the proximal and ultimate basis of behavior requires understanding the ecological and evolutionary context of behavior. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY/BOTANY 152, (ZOOLOGY/BIOLOGY 101 and BOTANY/BIOLOGY 130), or (BIOCORE 381 and 382)
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY 430 — COMPARATIVE ANATOMY OF VERTEBRATES
5 credits.

Basic vertebrate anatomical systems and a consideration of variations, using functional embryological and evolutionary approaches. Lab dissection and study of representative vertebrate material. Enroll Info: None
Requisites: (ZOOLOGY/BIOLOGY 101 and 102), ZOOLOGY/BIOLOGY/BOTANY 152, or BIOCORE 381
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY/BOTANY 450 — MIDWESTERN ECOLOGICAL ISSUES: A CASE STUDY APPROACH
2 credits.

How ecological principles can be used to address contemporary environmental issues such as water quality, invasive species, and population growth. Emphasis on midwestern issues, practical approaches, the role of history, and geographic context. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY/BOTANY 152, BOTANY/BIOLOGY 130, (ZOOLOGY/BIOLOGY 101 and ZOOLOGY/BIOLOGY 102), or BIOCORE 381
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Summer 2021

ZOOLOGY/BOTANY/F&W ECOL 460 — GENERAL ECOLOGY
4 credits.

Ecology of individual organisms, populations, communities, ecosystems, landscapes, and the biosphere. The interaction of organisms with each other and their physical environment. These relationships are studied, often in quantitative terms, in both field and laboratory settings. Enroll Info: None
Requisites: Satisfied Quantitative Reasoning (QR) A requirement and ZOOLOGY/BIOLOGY/BOTANY 152, (ZOOLOGY/BIOLOGY 101 and 102), BIOCORE 381, or BOTANY/BIOLOGY 130, or graduate/professional standing
Course Designation: Gen Ed - Quantitative Reasoning Part B
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY 470 — INTRODUCTION TO ANIMAL DEVELOPMENT
3 credits.

Introduction to the major features and mechanisms of early embryonic development in animals, including (1) the major stages of early development, (2) how form arises in the embryo (morphogenesis), (3) how differences arise between cells in the embryo, and (4) how specific genes control these processes. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY/BOTANY 151, BOTANY/BIOLOGY 130, ZOOLOGY/BIOLOGY 101, BIOCORE 381, or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2021
**ZOOLOGY/BOTANY/ENTOM 473 — PLANT-INSECT INTERACTIONS**
3 credits.

Multiple ways in which arthropods exploit plants, plant traits that deter or augment insects, environmental mediation of these interactions, effects on population dynamics, community ecology and co-evolution, and implications to natural resource management, environmental quality, and sustainable development. Enroll Info: None

**Requisites:** F&W ECOL/BOTANY/ZOOLOGY 460, F&W ECOL/ENTOM 500, ENTRRTL/BOTANY/PL PATH 505, or graduate/professional standing

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level:** Intermediate

**L&S Credit:** Counts as Liberal Arts and Science credit in L&S

**Grad 50%:** Counts toward 50% graduate coursework requirement

**Sustain:** Sustainability

**Repeatable for Credit:** No

**Last Taught:** Spring 2022

---

**ZOOLOGY 500 — UNDERGRADUATE NEUROBIOLOGY SEMINAR**
1 credit.

A wide range of topics in neurobiology research from molecular neurobiology to integrative systems. Topics discussed by invited UW-Madison faculty researchers might include: ion channels and synaptic plasticity, neural development, sensory and cognitive physiology, biological basis of behavioral disorders and cognitive decline. Enroll Info: None

**Requisites:** Declared in Neurobiology and ZOOLOGY/PSYCH 523 or concurrent enrollment.

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level:** Intermediate

**L&S Credit:** Counts as Liberal Arts and Science credit in L&S

**Repeatable for Credit:** Yes, unlimited number of completions

**Last Taught:** Spring 2022

---

**ZOOLOGY 504 — MODELING ANIMAL LANDSCAPES**
3-5 credits.

Use computer and Geographic Information System (GIS)-based modeling to explore how climate, topography, vegetation type, and key animal properties all interact to specify from first principles the energetics and activity constraints of animals on any landscape. Links individual, population and community variables at landscape scales. Enroll Info: None

**Requisites:** Junior standing

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level:** Advanced

**L&S Credit:** Counts as Liberal Arts and Science credit in L&S

**Grad 50%:** Counts toward 50% graduate coursework requirement

**Honors:** Accelerated Honors (!)

**Repeatable for Credit:** No

**Last Taught:** Spring 2018

---

**ZOOLOGY/ENVIR ST 510 — ECOLOGY OF FISHES**
3 credits.

Interactions of fishes with their physical, chemical, and biotic environment; physiological ecology, community ecology and fisheries sciences. Lake Mendota perch fishery and Shedd Aquarium field trips. Enroll Info: None

**Requisites:** (ZOOLOGY/BIOLOGY 101 and 102), ZOOLOGY/BIOLOGY/BOTANY 152, or BIOCORE 381

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level:** Intermediate

**L&S Credit:** Counts as Liberal Arts and Science credit in L&S

**Repeatable for Credit:** No

**Last Taught:** Spring 2022

---

**ZOOLOGY/ENVIR ST 511 — ECOLOGY OF FISHES LAB**
2 credits.

Anatomy and taxonomy of Wisconsin fishes and projects in fish ecology. Enroll Info: None

**Requisites:** ZOOLOGY/ENVIR ST 510 or concurrent enrollment

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level:** Advanced

**L&S Credit:** Counts as Liberal Arts and Science credit in L&S

**Repeatable for Credit:** No

**Last Taught:** Spring 2022

---

**ZOOLOGY/AN SCI/F&W ECOL 520 — ORNITHOLOGY**
3 credits.

Introduction to bird biology, ecology, and behavior. Topics include the evolutionary origin of birds and flight, anatomy and physiology, functional morphology, migration, communication, reproductive strategies, ecological adaptations and roles, and biogeographical patterns. Enroll Info: None

**Requisites:** ZOOLOGY/BIOLOGY 101 and 102, ZOOLOGY/BIOLOGY/BOTANY 152, (BIOCORE 381 and 382), or graduate/professional standing

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level:** Intermediate

**L&S Credit:** Counts as Liberal Arts and Science credit in L&S

**Grad 50%:** Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Spring 2022

---

**ZOOLOGY/AN SCI/F&W ECOL 521 — BIRDS OF SOUTHERN WISCONSIN**
3 credits.

Outdoor and indoor labs/lectures emphasizing identification of southern Wisconsin birds by sight and vocalization. Two required Saturday field trips in Southern Wisconsin. Enroll Info: None

**Requisites:** ZOOLOGY/BIOLOGY 101 and 102, ZOOLOGY/BIOLOGY/BOTANY 152, (BIOCORE 381 and 382), or graduate/professional standing

**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req

**Level:** Intermediate

**L&S Credit:** Counts as Liberal Arts and Science credit in L&S

**Grad 50%:** Counts toward 50% graduate coursework requirement

**Repeatable for Credit:** No

**Last Taught:** Spring 2022
ZOOLOGY/PSYCH 523 — NEUROBIOLOGY
3 credits.

Basic mechanisms in cellular neurophysiology: electrophysiology and chemistry of nerve signals, mechanisms in integration, simple nervous pathways and their behavioral correlates. Enroll Info: None
Requisites: (ZOOLOGY/BIOLOGY/BOTANY 151, ZOOLOGY/BIOLOGY 101, or BIOCORE 485) and (CHEM 104, CHEM 109, or CHEM 116)
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2021

ZOOLOGY 525 — TROPICAL HERPETOLOGY
1 credit.

Introduction to perhaps the least known but most threatened groups of tropical vertebrates, the amphibians and reptiles ("herps"). Focuses on the range of tropical habitats and the amphibians and reptiles to be found there, using the current extinction crisis among these animals as an underlying theme. Enroll Info: None
Requisites: (ZOOLOGY/BIOLOGY 101 and 102) or ZOOLOGY/BIOLOGY/BOTANY 152
Course Designation: Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2016

ZOOLOGY/ENTOM 540 — THEORETICAL ECOLOGY
3 credits.

Introduction to theoretical ecology, including hands-on experience in computer modeling. Enroll Info: None
Requisites: STAT/F&W ECOL/HORT 571
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Fall 2021

ZOOLOGY/GEOSCI 541 — PALEOBIOLOGY
3 credits.

The evolutionary process as interpreted from the fossil record. Topics include: the study of form; tempo and mode of evolution; levels and mechanisms of evolutionary change; extinction in the fossil record; trends and patterns in the history of life; macroevolution. Enroll Info: None
Requisites: GEOSCI 304, ZOOLOGY/BIOLOGY 101, ZOOLOGY/BIOLOGY/BOTANY 152, or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2019

ZOOLOGY/GEOSCI 542 — INVERTEBRATE PALEONTOLOGY
3 credits.

The evolutionary history, morphology, and ecology of fossil invertebrates. Labs emphasize fossil identification and recognition of basic morphological features. Enroll Info: None
Requisites: (GEOSCI 110 or 204), (ZOOLOGY/BIOLOGY 101 and 102), ZOOLOGY/BIOLOGY/BOTANY 152, (BIOCORE 381 and 382), or graduate/professional standing.
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2014

ZOOLOGY 555 — LABORATORY IN DEVELOPMENTAL BIOLOGY
3 credits.

Developmental anatomy and laboratory manipulations of representative animal embryos used extensively for analysis of developmental phenomena (sea urchins, amphibia, annelids, molluscs, ascidians, insects, chicks, fish, mice). Enroll Info: None
Requisites: ZOOLOGY 470, 625, ZOOLOGY/PSYCH 523, or BIOCORE 587 (or NTP 523 prior to Fall 2017)
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2021

ZOOLOGY/F&W ECOL/LAND ARC 565 — PRINCIPLES OF LANDSCAPE ECOLOGY
2 credits.

Emphasizes the importance of spatial patterns at broad scales. Concepts and applications are covered. Enroll Info: None
Requisites: (ZOOLOGY/BOTANY/F&W ECOL 460 or F&W ECOL 550) and (STAT 301, 371, or HORT/F&W ECOL/STAT 571), or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Fall 2021
ZOOGY 570 — CELL BIOLOGY
3 credits.

Comprehensive course on modern aspects of cell biology. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY 101, ZOOLOGY/BIOLOGY/BOTANY 151, or BIOCORE 383
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2021

ZOOGY 603 — ENDOCRINOLOGY
3-4 credits.

An introduction to the role that hormones play in a variety of physiological processes and behaviors from a molecular to a systems level. Topics include hormonal involvement in growth, development, homeostasis, reproduction, and behavior, with an emphasis on vertebrate systems. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY 101, ZOOLOGY/BIOLOGY/BOTANY 151, BIOCORE 383 or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2020

ZOOGY 604 — COMPUTER-BASED GENE AND DISEASE/DISORDER RESEARCH LAB
2 credits.

Learn to navigate open access biological and biomedical databases that include a wealth of information regarding genes, gene expression, gene pathways, behavioral characteristics, and disorders or diseases. This includes extracting information to develop new ideas, and using multiple databases to develop new ideas on which genes may be playing important, but previously underappreciated or unknown roles. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY 101, ZOOLOGY/BIOLOGY/BOTANY 151, BIOCORE 381, or graduate/professional standing
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2021

ZOOGY 611 — COMPARATIVE AND EVOLUTIONARY PHYSIOLOGY
3 credits.

Examines general physiological principles by comparing taxa from diverse evolutionary histories and ecological adaptations. Examples include adaptation to environments differing in salinity, temperature, altitude, pressure, or pollution, and examines how nervous and endocrine systems evolved to support the adaptations. Enroll Info: None
Requisites: ZOOLOGY/BIOLOGY 101, ZOOLOGY/BIOLOGY/BOTANY 151, BIOLOGY/BOTANY 151, or BIOCORE 381
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOGY 612 — COMPARATIVE PHYSIOLOGY LABORATORY
2 credits.

Investigating physiological adaptations in different animals. Design and execute experiments. Enroll Info: None
Requisites: ZOOLOGY 611 or concurrent enrollment
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOGY/NEURODPT/NTP 616 — LAB COURSE IN NEUROBIOLOGY AND BEHAVIOR
4 credits.

Independent experimental modules exploring neurophysiology and behavior will be completed in groups. Learn techniques and develop investigations into three separate areas of neurobiology. Enroll Info: None
Requisites: ZOOLOGY/PSYCH 523 and PSYCH 454
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2017

ZOOGY/ANTHRO/NTP/PSYCH 619 — BIOLOGY OF MIND
3 credits.

Requisites: Junior standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Repeatable for Credit: No
Last Taught: Fall 2018
ZOOLOGY/NTP 620 — NEUROETHOLOGY SEMINAR
2 credits.

A group discussion of primary literature articles relevant to the neural basis of behavior with a purpose to understand the neural basis of behavior in animals, to learn to read papers critically and improve discussion leading skills. Enroll Info: None
Requisites: PSYCH/ZOOLOGY 523 or graduate/professional standing
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2022

ZOOLOGY/ENTOM/GENETICS 624 — MOLECULAR ECOLOGY
3 credits.

Basic principles of molecular ecology. Lecture topics include population genetics, molecular phylogenetics, rates and patterns of evolution, genome evolution, and molecular ecology. Enroll Info: None
Requisites: GENETICS 466, 467, BIOCORE 383, or graduate student standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Fall 2021

ZOOLOGY 625 — DEVELOPMENT OF THE NERVOUS SYSTEM
2 credits.

Survey of the principles guiding neuronal development. Covers descriptive and experimental analyses of developmental mechanisms underlying the formation of both vertebrate and invertebrate nervous systems. Enroll Info: None
Requisites: ZOOLOGY/PSYCH 523 or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Spring 2018

ZOOLOGY/BOTANY/ENVIR ST/F&W ECOL 651 — CONSERVATION BIOLOGY
3 credits.

Application of ecological principles and human dimensions to the conservation of biological diversity. Topics: biodiversity science; conservation planning; population ecology; habitat loss, species exploitation, invasive species, pollution; human attitudes and activities as they affect the biosphere; approaches to monitoring interventions. Enroll Info: None
Requisites: Satisfied Quantitative Reasoning (QR) A requirement and ZOOLOGY/BOTANY 450, F&W ECOL/BOTANY 455, ZOOLOGY/BOTANY/F&W ECOL 460, or graduate/professional standing
Course Designation: Gen Ed - Quantitative Reasoning Part B
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2021

ZOOLOGY 655 — MODELING NEURODEVELOPMENTAL DISEASE
3 credits.

Systematically explores current animal models of human diseases that affect the central nervous system. Topics will include birth defects that disrupt normal brain architecture (holoprosencephaly and neural tube closure defects), birth defects affecting the visual system, and postnatal disease, e.g. neurodegeneration and stroke. Enroll Info: None
Requisites: GENETICS 466, ZOOLOGY 523, ZOOLOGY 470, or 570
Course Designation: Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY/F&W ECOL 660 — CLIMATE CHANGE ECOLOGY
3 credits.

The evidence that the Earth’s climate is changing at unprecedented rates is now overwhelming. Environmental tipping points are being crossed and many species are adapting or failing to adapt. Climate change poses a significant problem for conserving and managing wildlife and their habitats. Climate change and its ecological impacts will be discussed and analyzed. Enroll Info: None
Requisites: (Declared in Forest Science or Wildlife Ecology and Junior standing), ZOOLOGY/BOTANY/F&W ECOL 460, or graduate/professional standing
Course Designation: Breadth - Biological Sci. Counts toward the Natural Sci req
Level - Advanced
L&S Credit - Counts as Liberal Arts and Science credit in L&S
Grad 50% - Counts toward 50% graduate coursework requirement
Sustain - Sustainability
Repeatable for Credit: No
Last Taught: Fall 2021
**ZOOLOGY/BOTANY/F&W ECOL 672 — HISTORICAL ECOLOGY**  
2 credits.

Study the importance of past events for current ecosystems. Emphasizes concepts and applications. Enroll Info: None

**Requisites:** Senior standing  
**Course Designation:** Breadth - Biological Sci. Counts toward the Natural Sci req  
Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
Grad 50% - Counts toward 50% graduate coursework requirement  
**Repeatable for Credit:** No  
**Last Taught:** Spring 2022

**ZOOLOGY/NEURODPT/PSYCH 674 — BEHAVIORAL NEUROENDOCRINOLOGY SEMINAR**  
2 credits.

Behavior results from a complex interplay among hormones, the brain, and environmental factors. Behaviors and their underlying neural substrates have evolved in response to specific environmental conditions, resulting in vast species diversity in behavioral and neuroendocrine solutions to environmental problems. Designed to explore the primary literature on the neuroendocrine underpinnings of behavior spanning from feeding to sex differences in complex social behaviors. A range of taxonomic groups will be discussed, including (but not limited to) mammals, birds, and fish. Enroll Info: None

**Requisites:** ZOOLOGY/BIOLOGY 101, ZOOLOGY/BIOLOGY/BOTANY 151, BIOCORE 383 or graduate/professional standing  
**Course Designation:** Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
Grad 50% - Counts toward 50% graduate coursework requirement  
**Repeatable for Credit:** No  
**Last Taught:** Fall 2021

**ZOOLOGY 677 — INTERNSHIP IN ECOLOGY**  
2 credits.

Provides support and structure for those interested in gaining hands-on experience working as a volunteer with local environmental, ecological or conservation groups. Enroll Info: None

**Requisites:** Junior standing  
**Course Designation:** Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
**Repeatable for Credit:** No  
**Last Taught:** Spring 2022

**ZOOLOGY 681 — SENIOR HONORS THESIS**  
1-6 credits.

Mentored individual research and study for students completing a thesis in an Honors program. Enroll Info: None

**Requisites:** Consent of instructor  
**Course Designation:** Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
Honors - Honors Only Courses (H)  
**Repeatable for Credit:** Yes, unlimited number of completions  
**Last Taught:** Spring 2022

**ZOOLOGY 682 — SENIOR HONORS THESIS**  
1-4 credits.

Mentored individual research and study for students completing a thesis in an Honors program. Enroll Info: None

**Requisites:** Consent of instructor  
**Course Designation:** Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
Honors - Honors Only Courses (H)  
**Repeatable for Credit:** No  
**Last Taught:** Fall 2021

**ZOOLOGY 691 — SENIOR THESIS**  
1-6 credits.

Mentored individual research and study for students completing a senior thesis. Enroll Info: None

**Requisites:** Consent of instructor  
**Course Designation:** Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
**Repeatable for Credit:** Yes, unlimited number of completions  
**Last Taught:** Fall 2021

**ZOOLOGY 692 — SENIOR THESIS**  
1-4 credits.

Mentored individual research and study for students completing a senior thesis. Enroll Info: None

**Requisites:** Consent of instructor  
**Course Designation:** Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
**Repeatable for Credit:** No  
**Last Taught:** Spring 2021

**ZOOLOGY 698 — DIRECTED STUDY**  
1-6 credits.

Selected research projects for juniors and seniors. Enroll Info: None

**Requisites:** Consent of instructor  
**Course Designation:** Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
**Repeatable for Credit:** Yes, unlimited number of completions  
**Last Taught:** Fall 2021

**ZOOLOGY 699 — DIRECTED STUDIES IN ZOOLOGY**  
1-6 credits.

Selected research projects for juniors and seniors. Enroll Info: None

**Requisites:** Consent of instructor  
**Course Designation:** Level - Advanced  
L&S Credit - Counts as Liberal Arts and Science credit in L&S  
**Repeatable for Credit:** Yes, unlimited number of completions  
**Last Taught:** Spring 2022
ZOOLOGY/BOTANY 725 — ECOSYSTEM CONCEPTS
3 credits.

Scope and objectives of ecosystem ecology; roles of theory, long-term studies, comparative studies, and large-scale experiments; scaling problems; ecosystem services and ecological economics; adaptive ecosystem assessment and management. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2017

ZOOLOGY/ATM OCN/ENVIR ST/GEOSCI 750 — PROBLEMS IN OCEANOGRAPHY
3 credits.

Introduction to techniques used in the study of the biology, chemistry, geology, and physics of the marine environment. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2021

ZOOLOGY/NEURODPT/NTP 765 — DEVELOPMENTAL NEUROSCIENCE
3 credits.

Analysis of neural development with emphasis on experimental approaches. Combination of lectures and discussions of primary literature. Topics include neural induction, patterning, mechanisms of axon guidance, neural crest cell migration and differentiation, cortical development, and synapse formation and elimination. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY 799 — INDEPENDENT STUDY
1-6 credits.

Advanced topics in zoology explored through individual research projects. Enroll Info: None
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2021

ZOOLOGY/BOTANY/ENTOM/GENETICS 820 — FOUNDATIONS OF EVOLUTION
2 credits.

Explore some of the most important themes and debates that have permeated evolutionary biology over the last 50 years. Read key papers related to each controversial topic, debate the pros and cons of competing viewpoints, and reflect on the relevance of the issue to contemporary evolutionary biology. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2021

ZOOLOGY/BOTANY/F&W ECOL 879 — ADVANCED LANDSCAPE ECOLOGY
3 credits.

Emphasizes spatial patterning (its development and importance for ecological processes) and often focuses on large regions. Learn concepts, methods, and applications of landscape ecology. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Spring 2022

ZOOLOGY/ATM OCN/BOTANY/CIV ENGR/ENVIR ST/GEOSCI 911 — LIMNOLOGY AND MARINE SCIENCE SEMINAR
1 credit.

Sections in various fields of zoological research. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% -Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2022

ZOOLOGY/ENTOM/PSYCH 950 — INTERDISCIPLINARY SEMINAR IN ANIMAL BEHAVIOR
1 credit.

Research methods in animal behavior studies in many disciplines. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2013
ZOOLOGY/AGRONOMY/ATM OCN/BOTANY/ENTOM/ENVIR ST/ F&W ECOL/GEOG 953 — INTRODUCTION TO ECOLOGY RESEARCH AT UW-MADISON
1-2 credits.

Introduces new graduate students to the diversity of ecologists across the UW-Madison campus. Includes discussions of key topics in professional development, research presentations by faculty members, and discussions of assigned papers with senior graduate students. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: No
Last Taught: Fall 2021

ZOOLOGY/AN SCI/OBS&GYN 954 — SEMINAR IN ENDOCRINOLOGY-REPRODUCTIVE PHYSIOLOGY
0-1 credits.

Promotes scientific and professional development. Presenters develop and deliver research presentations to a scientific audience, field questions, and receive critiques about their presentation style and scientific approach. Additional presentations include professional development, career advancement opportunities, and topics of interest to the endocrinology and reproduction community at large. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2022

ZOOLOGY 955 — SEMINAR-LIMNOLOGY
1 credit.

Sections in various fields of zoological research. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2022

ZOOLOGY 956 — SEMINAR-ECOLOGY
1 credit.

Sections in various fields of zoological research. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2022

ZOOLOGY 957 — SEMINAR-EVOLUTION
1 credit.

Sections in various fields of zoological research. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2022

ZOOLOGY 958 — SEMINAR-BIOPHYSICAL AND PHYSIOLOGICAL ECOLOGY
1 credit.

Sections in various fields of zoological research. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2017

ZOOLOGY 960 — SEMINAR IN CELLULAR BIOLOGY
1 credit.

Sections in various fields of zoological research. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2022

ZOOLOGY 962 — SEMINAR-ETHOLOGY
1 credit.

Sections in various fields of zoological research. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2021

ZOOLOGY/ATM OCN/BOTANY/ENVIR ST/F&W ECOL/GEOG/GEOSCI 980 — EARTH SYSTEM SCIENCE SEMINAR
1 credit.

Topics in earth system science. Emphasis on the coupling between atmospheric, oceanic and land surface systems, involving physical geochemical and biological processes, and including interactions with human systems. Enroll Info: None
Requisites: Graduate/professional standing
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Fall 2016

ZOOLOGY 990 — RESEARCH
1-9 credits.

Advanced research in biology as part of graduate program requirements arranged with mentoring faculty. Enroll Info: None
Requisites: Consent of instructor
Course Designation: Grad 50% - Counts toward 50% graduate coursework requirement
Repeatable for Credit: Yes, unlimited number of completions
Last Taught: Spring 2022